ABC of general practice

Its nature and content

General practice is a traditional method of bringing primary health care to the community. It is a medical discipline in its own right, linking the vast amount of accumulated medical knowledge with the art of communication.

Definitions

General practice can be defined as that medical discipline which provides 'community-based, continuing, comprehensive, preventive primary care', sometimes referred to as the CCCP model. The RACGP uses the following definitions of general practice and primary care:

General practice is defined as the provision of primary continuing comprehensive whole-patient care to individuals, families and their communities.

Primary care involves the ability to take responsible action on any problem the patient presents, whether or not it forms part of an ongoing doctor patient relationship. In managing the patient, the general/family practitioner may make appropriate referral to other doctors, health care professionals and community services. General/family practice is the point of first contact for the majority of people seeking health care. In the provision of primary care, much ill-defined illness is seen; the general/family practitioner often deals with problem complexes rather than with established diseases.

The practitioner must be able to make a total assessment of the person's condition without subjecting the person to unnecessary investigations, procedure and treatment.

Unique features of general practice

The features that make general practice different to hospital or specialist-based medical practices include:

- first contact
- diagnostic methodology
- early diagnosis of life-threatening and serious disease
- continuity and availability of care
- personalised care
- care of acute and chronic illness
- domiciliary care
- emergency care (prompt treatment at home or in the community)
- family care
- palliative care (at home)
- preventive care
- scope for health promotion
- holistic approach
- health care co-ordination

Table 5 The seven other masquerades

1 Chronic renal failure
2 Malignant disease
- lymphomas/leukaemias
- lung
- caecum/colon
- kidney
- multiple myeloma
- ovary
- metastasis

3 HIV infection/AIDS
4 Baffling bacterial infections
- syphilis
- tuberculosis
- infective endocarditis
- the zoonoses
- *Chlamydia* infections
- atypical pneumonias
- others

5 Baffling viral (and protozoal) infections
- Epstein-Barr mononucleosis
- TORCH organisms (e.g. cytomegalovirus)
- hepatitis A, B, C, D, E, E, G
- mosquito-borne infections
  - malaria
  - Ross River fever
  - dengue
- others

6 Neurological dilemmas
- Parkinson's disease
- Guillain-Barre syndrome
- seizure disorders esp. complex partial
- multiple sclerosis
- myasthenia gravis
- space-occupying lesion of skull
- migraine and its variants
- others

7 Connective tissue disorders and the vasculitides
- Connective tissue disorders
  - SLE
  - systemic sclerosis
  - dermatomyositis
  - overlap syndrome
- Vasculitides
  - polyarteritis nodosa
  - giant cell arteritis/ polymyalgia rheumatica
  - granulomatous disorders

5. Is the patient trying to tell me something? The doctor has to consider, especially in the case of undifferentiated illness, whether the patient has a 'hidden agenda' for the presentation. Of course, the patient may be depressed (overt or masked) or may have a true anxiety state. However, a presenting symptom such as tiredness may represent a 'ticket of entry' to the consulting room. It may represent a plea for help in a stressed or anxious patient. The author has another checklist (Table 6) to help identify the psychosocial reasons for a patient's malaise.

Table 6 Underlying fears or image problems that cause stress and anxiety

1 Interpersonal conflict in the family
2 Identification with sick or deceased friends
3 Fear of malignancy
4 STIs, especially AIDS
5 Impending 'coronary' or 'stroke'
6 Sexual problem
7 Drag-related problem
8 Crippling arthritis
9 Financial woes
10 Other abnormal stressors

Abdominal pain

Key facts and checkpoints

The commonest causes of the acute abdomen in two general practice series were: *Series 1* acute appendicitis (31%) and the colics (29%); *Series 2* acute appendicitis (21%), the colics (16%), mesenteric adenitis (16%). The latter study included children.

Diagnostic guidelines

General rules

- Upper abdominal pain is caused by lesions of the upper GIT.
- Lower abdominal pain is caused by lesions of the lower GIT or pelvic organs.
- Early severe vomiting indicates a high obstruction of the GIT.
- Acute appendicitis features a characteristic 'much' of symptoms: pain→anorexia→nausea→vomiting.

Pain patterns The pain patterns are presented in the figure below. Colicky pain is a rhythmic pain with regular spasms of recurring pain building to a climax and fading. It is virtually pathognomonic of intestinal obstruction. Ureteric colic is a true colicky abdominal pain, but so-called biliary colic and renal colic are not true colics at all.

Figure X Characteristic pain patterns for various causes of 'colicky' acute abdominal pain

Abdominal pain in children

Abdominal pain is a common complaint in children, especially recurrent abdominal pain.

Infantile colic

Typical features

- Baby between 2–16wk old, esp. 10wk
- Prolonged crying in healthy child at least 3h
- Crying during late afternoon and early evening
- Child flexing legs, clenching fists because of the 'ache', passes gas

Management Reassurance and explanation to the parents.

Figure X Typical clinical features of acute torsion of an ovarian cyst

Acute torsion of ovarian cyst

Diagnosis Ultrasound ± Doppler studies

Treatment Laparotomy and surgical correction

Pelvic adhesions

Pelvic adhesions may be the cause of pelvic pain, infertility, dysmenorrhoea and intestinal pain. They can be diagnosed and removed laparoscopically when the adhesions are well visualised and there are no intestinal loops firmly stuck together (🗋255–6).

Acne

Some topical treatment regimens

Mild to moderate acne

1 Use isotretinoin 0.05% gel or tretinoin 0.05% cream, apply each night (especially if comedones).
2 After 2wk, add benzoyl peroxide 2.5% or 5% gel once daily (in the morning). That is, after 2wk, maintenance treatment is:
   - isotretinoin 0.05% gel at night
   - benzoyl peroxide 2.5% or 5% mane

   Maintain for 3mth and review.
3 Alternative treatments:
   - clindamycin topical or
   - erythromycin 2% topical gel or
   - adapalene (Differin) cream or gel or
   - azelaic acid, apply bd

Clindamycin regimen Use clindamycin HCl in alcohol. Apply to each comedone with fingertips twice daily.

- A ready clindamycin preparation is Clindatech.
- Clindamycin is particularly useful for pregnant women and those who cannot tolerate antibiotics or exfoliants.

Oral antibiotics Use if acne resistant to topical agents or for inflammatory acne. Tetracycline 1g/d or doxycycline 100mg/d or minocycline 50–100mg bd for 4wk (or up to 10wk if slow response) then reduce according to response (e.g. doxycycline 50mg for at least 6mth to achieve maximal response).

Other therapies Severe cystic acne (specialist care)
- isotretinoin (Roaccutane)
- dapsone

♀ not responding to first-line treatment:
- combined oral contraceptive pill (e.g. ethinyloestradiol/ cyproterone acetate (Diane-35 ED))

New agents for mild to moderate acne:
- azelaic acid, apply bd
- adapalene, apply once daily at bedtime

Facial scars Injections of collagen can be used for the depressed facial scars from cystic acne.

Acute allergic reactions

- Mufti-system
  - acute anaphylaxis
  - anaphylactic reactions
- Localised
  - angioedema
  - urticaria

Anaphylaxis and anaphylactic reactions

Treatment for adults

First line
- Oxygen 6–8L/min (by face mask)
- Adrenaline 0.3–0.5mg (1:1000) SC or IM (more severe) best given in upper body (e.g. deltoid) (mg = mL of 1:1000 adrenaline)

If no rapid improvement adrenaline 1 in 10 000: (dilute 1mL 1:1000 in 9mL saline) 5–10mL IV over 2–5min

Repeat adrenaline every 5–10min as necessary (IM or IV)
- Insert IV line and infuse colloid solution e.g. Haemaccel (500mL→1L) or crystalloid solution e.g. N saline (1.5L→3L) 1 part colloid = 3 parts crystalloid (by volume)
- Salbutamol aerosol inhalation (or nebulisation if severe)
- Promethazine 10mg IV slowly (or 25mg IM) or diphenhydramine 10mg IV (or 25mg IM)
- Admit to hospital (observe at least 4h)

If not responding Continue adrenaline every 5min:
- hydrocortisone 500mg IV (takes 3–1h for effect)
- establish airway (oral airway or endotracheal intubation) if required

Treatment for children

- Oxygen 6–8L/min by mask
- Adrenaline 1:1000 (0.01mL/kg) IM or SC or adrenaline 1:10 000 slow IV infusion in dose 0.1mL/kg of 1:10 000 or less if the desired effect is achieved before full dose given

If necessary
- Hydrocortisone: 8–10mg/kg IV
- Hypotension: colloid solutions IV (e.g. Haemaccel stable plasma protein solution (SPPS) or Dextran 70)
- Bronchospasm: nebulised salbutamol
- Upper airways obstruction: mild to moderate—inhaled adrenaline (0.5mL/kg) 1:1000 (max. 4mL) dilute to 4mL, with saline or water if necessary severe—intubation may be necessary

Angioedema and acute urticaria

Acute urticaria and angioedema are essentially anaphylaxis limited to the skin, subcutaneous tissues and other specific organs. They can occur together (🗋290).

Treatment
- Uncomplicated cutaneous swelling—antihistamines e.g. diphenhydramine 50mg (o) tds or promethazine 25mg IM if more severe
- Upper respiratory involvement—adrenaline 0.3mg SC—antihistamine IM

Adolescent health

Adolescence is the name given to the psychosocial life stage which starts around the time of puberty; considered to span about 12–19y of age.

Hallmarks of the adolescent The main hallmarks of the adolescent are:
- self-consciousness
- self-awareness
- self-centredness
- lack of confidence

Needs of the adolescent Adolescents have basic needs that will allow them the optimal environmental conditions for their development:
- 'room' to move
- privacy and confidentiality
- security (e.g. stable home)
- acceptance by peers
- someone to 'lean on' (e.g. youth leader)
- special 'heroes'
- establishment of an adult sexual role
- one good trustworthy friend

The clinical approach Consider the mnemonic HEADS in the history:
H home
E education, employment, economic situation
A activities, affect, ambition, anxieties
D drugs, depression
S sex, stress, suicide, self-esteem
During this process it is necessary to be aware of the fundamental development tasks of adolescence, namely:
- establishing identity and self-image
- emancipation from the family and self-reliance
- establishing an appropriate adult sexual role
- developing a personal moral code
- making career and vocational choices
- ego identity and self-esteem

If consulted it is necessary to conduct a physical examination and order very basic investigations if only to exclude organic disease and provide the proper basis for effective counselling. Areas of counselling and anticipation guidance that are most relevant are:
- emotional problems/depression
- significant loss (e.g. breakdown of 'first love)
- sexuality
- contraception
- guilt about masturbation or other concerns
- making career and vocational choices
- ego identity and self-esteem

Depression, parasuicide and suicide When dealing with adolescents it is important always to be on the lookout for depression and the possibility of suicide, which is the second most common cause of death in this group. ♂ successfully complete suicide 4 times more often than ♀ while ♀ attempt suicide 8–20 times more often than ♂.

It is important not to be afraid to enquire about thoughts of suicide as it gives teenagers a chance to unburden themselves; it is not provoking them to contemplate suicide.

Alcohol problems

Excessive and harmful drinking People are said to be dependent on alcohol when it is affecting their physical health and social life yet they do not seem to be prepared to stop drinking to solve their problems.

For ♂, excessive drinking is more than four standard drinks of alcohol a day. For ♀, drinking becomes a serious problem at lesser amounts—two standard drinks a day. This level can also affect the foetus of the pregnant ♀. High-risk or harmful drinking occurs at more than six drinks a day for ♂ and four drinks a day for ♀.

Table 7 NH&MRC guidelines for sensible drinking: standard drinks per day

	Short term	Long term
Men	up to 6	up to 4
Women	up to 4	up to 2
Max: 3d/wk for short term		

Laboratory investigations The following blood tests may be helpful in the identification of excessive chronic alcohol intake:

- blood alcohol
- serum gamma glutamyl transferase (GGT): elevated in chronic drinkers (returns to normal with cessation of intake)
- mean corpuscular volume (MCV): >98fl, (i.e. macrocytosis)

Measuring alcohol intake One standard drink contains 10g of alcohol, which is in one middy (or pot) of standard beer (285mL), two middies of low-alcohol beer or five middies of super-light beer. These are equal in alcohol content to one small glass of table wine (120mL), one glass of sherry or port (60mL) or one nip of spirits (30mL).

Figure X Standard drinks

1 stubby or can of beer = 1.3 standard drinks
1 × 750 Put, bottle of beer = 2.6 standard drinks
1 × 750 Put, bottle of wine = 6 standard drinks

Approach to management The challenge to the family doctor is early recognition of the problem. Several studies have shown that early intervention and brief counselling by the doctor are effective in leading to rehabilitation. Some of the results are very revealing:

- Patients expect their family doctor to advise on safe drinking levels.
- They will listen and act on our advice.
- Treatment is more effective if offered before dependence or cluonic disease has developed.

A brief practical management plan

A six-step management plan, which has been employed in a general-practice early intervention program, is as follows:

1 *Feed back* the results of your assessment and specifically the degree of risk associated with their daily alcohol intake and bout drinking. Emphasise any damage that has already occurred.
2 *Listen* carefully to their reaction. They will need to ventilate their feelings and may respond defensively.
3 *Outline the benefits* of reducing drinking (e.g. save money, better health).
4 *Set goals* for alcohol consumption which you both agree are feasible.
♂: *no more than* 3–1 standard drinks 3–1 times/wk (aim for fewer than 12/wk).
♀: *no more than* 2–3 drinks 2–3 times/wk (aim for fewer than 8/wk).
For patients with severe ill effects and who are physically dependent on alcohol, long-term abstinence is advisable.
5 *Set strategies* to keep below the upper safe limits:
   - Quench thirst with non-alcoholic drinks before having alcohol.
   - Switch to low-alcohol beer.
   - 'Fake care which parties you go to.
   - Explore new interests—fishing, cinema, social club, sporting activity.
6 *Evaluate* progress by having patients monitor their drinking by using a diary. Make a definite appointment for follow-up and give appropriate literature such as *Alcohol* and *health*. Obtain consent for a telephone follow-up. A useful minimum intervention plan is presented in Table 7.

Table 8 Minimum intervention technique plan (5–10min)

1	Advise reduction to safe levels
2	Outline the benefits
3	Provide a self-help pamphlet
4	Organise a diary or other feedback system
5	Obtain consent for a telephone follow-up
6	Offer additional help (e.g. referral to an alcohol and drug unit or to a support group)

The use of disulfiram In compliant patients, disulfiram 250–500mg daily can be used—such treatment has hazards and the patient requires intensive supportive therapy.

Follow-up (long consultation 1wk later) Review the patient's drinking diary. Explore any problems, summarise, listen and provide support and encouragement. If appointment is not kept, contact the patient.

Anti-alcohol dependence drugs The following show a modest effect on assisting abstinence:

- acamprosate 666mg (o) Ids
- naltrexone 50mg (o) daily

Microcytic anaemia—MCV≤80fL

The main causes of microcytic anaemia are iron deficiency and haemoglobulinopathy, particularly thalassaemia.

Iron-deficiency anaemia

Iron deficiency is the most common cause of anaemia worldwide. The most common causes are chronic blood loss and poor diet.

Haemological investigations: typical findings

- Microcytic, hypochromic red cells
- Anisocytosis (variation in size), poikilocytosis (shape)
- Low serum iron
- Raised iron-binding capacity
- Serum ferritin low (NR: 20–200µg/L (the most useful index)

Treatment

- Correct the identified cause.
- Iron preparations:
  - oral iron (preferred method) (e.g. Ferro-Gradumet 350mg (o) daily)
  - parenteral iron is best reserved for special circumstances. It can cause a 'tattoo' effect.

Response

- Anaemia responds after about 2wk and is usually corrected after 2mth
- Oral iron is continued for 3–6mth to replenish stores
- Monitor progress with regular serum ferritin
- A serum ferritin >50µg/L generally indicates adequate stores

Thalassaemia

The heterozygous form is usually asymptomatic; patients show little if any anaemia. The homozygous form is a very severe congenital anaemia needing lifelong transfusional support.

The key to the diagnosis of the heterozygous 'thalassaemia minor' is significant microcytosis quite out of proportion to the normal Hb or slight anaemia, and confirmed by finding a raised HbA2 on Hb electrophoresis or by DNA analysis. It must be distinguished from irondeficiency anaemia, for iron does not help thalassaemics and is theoretically contraindicated.

Macrocytic anaemia—MCV>98 fL

Vitamin B_{12} deficiency (pernicious anaemia)

The clinical features are anaemia (macrocytic), weight loss and neurological symptoms, especially a polyneuropathy. The serum vitamin B_{12} is below the normal level.

Replacement therapy

- Vitamin B_{12} (1mg) IM injection: body stores (3–5mg) are replenished after 10 injections given every 2–3d
- Maintenance with 1mg injections every 3mth

Folate deficiency

The main cause is poor intake associated with old age, poverty and malnutrition, usually associated with alcoholism. It may be seen in malabsorption and regular medication with anti-epileptic drugs such as phenytoin. It is rarely, but very importantly, associated with pregnancy.

Replacement therapy Oral folate 5mg/d, to replenish body stores (5–10mg) in about 4wk.

Angina pectoris

Management of stable angina

- Attend to any risk factors.
- If inactive, take on an activity such as walking for 20min/d.
- Regular exercise to the threshold of angina.
- Relaxation program.
- Avoid precipitating factors.
- Don't excessively restrict lifestyle.

Medical treatment

The acute attack

- Glyceryl trinitrate (nitroglycerine) 600µg tab or 300µg (1/2 tab) sublingually (SL) or
- Glyceryl trinitrate SL spray: 1–2 sprays. Repeat after 5min if pain persists (max. 2 doses) or
- Nifedipine 5mg capsule (suck or chew) if intolerant of nitrates

Advise that if no relief after 2–3 tablets get medical advice.

Mild stable angina Angina that is predictable, precipitated by more stressful activities and relieved rapidly.

- Aspirin 150mg (o) daily
- Glyceryl trinitrate (SL or spray) prn (use early)
- Consider a beta-blocker or long acting nitrate or nicorandil

Moderate stable angina Regular predictable attacks precipitated by moderate exertion.

- As above *plus*
- Beta-blocker, e.g. atenolol 50–100mg (o) once daily or metoprolol 50–100mg (o) daily
- Glyceryl trinitrate (ointment and patches) daily (12–16h only) or isosorbide mononitrate 60mg (o) SR tablets mane (12h span)

Management of generalised anxiety disorder

The management applies mainly to generalised anxiety as specific psychotherapy is required in other types of anxiety. Much of the management can be carried out successfully by the family doctor using brief counselling and support:

- use non-pharmacological methods
- give explanation and reassurance
- promote stress management techniques, including meditation
- advice on coping skills
- avoid the use of drugs if possible

Pharmacological treatment

Acute episodes The following drugs are recommended for patients with intermittent transient exacerbations not responding to other measures.

- diazepam 2–5mg (o) as a single dose repeated bd as required *or*
- diazepam 5–10mg (o) nocte *or*
- oxazepam 15–30mg (o) as a single dose repeated bd as required

Special notes:

- Recommended (if necessary) for up to 2wk, then taper off to zero over next 4wk.
- Reassess in 7d.
- Consider beta-blockers in patients with sympathetic activation such as palpitations, tremor and excessive sweating (e.g. propranolol 10–40mg (o) Ids). They do not relieve the mental symptoms of anxiety, however.

Long-term treatment If non-pharmacological treatment is ineffective for persisting disabling anxiety the drug of choice is:

- venlafaxine (modified release) 75mg (o) mane increasing gradually to 225mg/d
- continue for several wk after symptoms subside and wean off after 6mth
- an alternative agent is buspirone 5mg (o) Ids, increase if necessary to 20mg (o) Ids

Panic disorder

Patients with panic disorder experience sudden, unexpected, short-lived episodes of intense anxiety. These tend to be recurrent and occur most often in young ♀. Follow DSM-IV-TR guidelines for diagnosis.

Management

Reassurance, explanation and support (as for generalised anxiety).

Cognitive behaviour therapy This aims to reduce anxiety by teaching patients how to identify, evaluate, control and modify their -ve, fearful thoughts and behaviour. If simple psychotherapy and stress management fails, then patients should be referred for this therapy. If hyperventilating, breathe in and out of a paper bag.

Pharmacological treatment Acute episodes:

- diazepam 5mg (o) *or*
- oxazepam 15–30mg (o) *or*
- alprazolam 0.25–0.5mg (o) *or*
- paroxetine 20–60mg (o)

Prophylaxis Benzodiazepines, e.g. alprazolam 0.25–6mg (o) daily in divided doses

Note: Medication should be withdrawn slowly. Medication for panic disorder may need to be continued for 6–12mth. Antidepressants (e.g. imipramine or SSRIs) can be effective.

Phobic disorders

In phobic states the anxiety is related to specific situations or objects. Patients avoid these situations and become anxious when they anticipate having to meet them.

The three main types of phobic states are:

- simple phobias
- agoraphobia
- social phobias

The ten most common phobias (in order) are spiders, people and social situations, flying, open spaces, confined spaces, heights, cancer, thunderstorms, death and heart disease.

Management

The basis of treatment for all phobic disorders is psychotherapy that involves behaviour therapy and cognitive therapy.

Pharmacological treatment 'Ibis should be used only if non-pharmacological measures fail.

- Agoraphobia with panic: use medications as for panic attacks.
- Social phobia with performance anxiety: propranolol 1010mg (o) 300min before the social event or performance. Otherwise use an SSRI for problematic social phobia.

Obsessive-compulsive disorder

Management

Optimal management is a combination of psychotherapeutic and pharmacological treatment, namely:

- cognitive behaviour therapy for obsessions
- exposure and response prevention for compulsions
- clomipramine 50–75mg (o) node increasing gradually to 150–250mg (o) node

An alternative agent to clomipramine (if not tolerated or ineffective) is an SSRI (e.g. fluoxetine 100mg (o) daily).

Table 10 Pain in the arm and hand: diagnostic strategy model

Q: Probability diagnosis
A: Dysfunction of cervical spine (lower)
Disorders of the shoulder
Medial or lateral epicondyliris
Overuse tendinitis of the wrist
Carpal tunnel syndrome
Osteoarthritis of thumb and DIP joints

Q: Serious disorders not to be missed
A: Cardiovascular
- angina (referred)
- myocardial infarction
- axillary venous thrombosis

Neoplasia
- Pancoast's tumour
- bone tumours (rue)

Severe infections
- septic arthritis (shoulder/elbow)
- osteomyelitis
- infections of tendon sheath and fascial spaces of hand

Q: Pitfalls (often missed)
A: Entrapment neuropathies (e.g. median nerve, ulnar nerve)
Pulled elbow children
Foreign body (e.g. elbow)
Rarities
- Polymyalgia rheumatica (for arm pain)
- Complex regional pain syndrome
- Thoracic outlet syndrome
- Erythromelalgia (erythermalgia)
- Sporotrichosis ('gardener's arm')

Q: Seven masquerades checklist

A: Depression	√
Diabetes	possible
Drugs	–
Anaemia	–
Thyroid disorder	–
Spinal dysfunction	√
UTI	–

Q: Is the patient tying to tell me something?
A: Highly likely, especially with so-called RSI syndromes.

Treatment (options)

- Surgical decompression (best)
- Injection of LA corticosteroid into tunnel
- Ultrasound
- Neutral wrist splints (bedtime)

Arthritis

Osteoarthritis

Optimal treatment

- *Explanation:* patient education and reassurance that arthritis is not the crippling disease perceived by most patients.
- *Rest:* during an active bout of inflammatory activity only.
- *Exercise*: a graduated exercise program is essential to maintain joint function. Aim for a good balance of relative rest with sensible exercise.
- *Heat:* recommended is a hot-water bottle warm bath or electric blanket to soothe pain and stiffness. Advise against getting too cold.
- *Diet:* if overweight it is important to reduce weight to ideal level.
- *Physiotherapy*: referral should be made for specific purposes such as: exercises and supervision of a hydrotherapy program.
- *Occupational therapy:* refer for advice on aids in the home.
- *Simple analgesics* (regularly for pain): paracetamol (avoid codeine or dextroproproxyphene preparations and aspirin if recent history of dyspepsia or peptic ulceration).
- *NSAIDs and aspirin* are the first-line drugs for more persistent pain or where there is evidence of inflammation. The risk versus benefit equation always has to be weighed carefully. As a rule, NSAIDs should be avoided if possible. If given-short courses of 14d. The COX-2 specific inhibitors should be considered where there is an indication for an NSAID but the risk of NSAID-induced ulceration and bleeding is high.
- *Intrarticular corticosteroids:* as a rule IA corticosteroids are not recommended but occasionally can be very effective for an inflammatory episode of distressing pain (e.g. a flare-up in an osteoarthritic knee).
- *Viscosupplementation:* IA hylans show promise, especially for OA of knee.
- *Glucosamine*, a natural amine-sugar, has proven value for osteoarthritis.
- Referral for surgical intervention for debilitating and intractable pain or disability. Examples include OA of hip, knee, shoulder, firstcmC joint of thumb, and first MTP joint.

Rheumatoid arthritis

Investigations

- ESR usually raised according to active disease
- Anaemia (normochromic and normocytic) may be present
- Rheumatoid factor +ve in about 80–85%
- Antinuclear antibodies +ve in 30%
- X-ray changes

Management principles Give patient education, support and appropriate reassurance. The diagnosis generally has distressful implications so the patient and family require careful explanation and support. It should be pointed out that the majority of patients have little or no long-term problems.

Specific advice

- Rest and splinting: this is necessary where practical for any acute flare-up of arthritis.
- Exercise: it is important to have regular exercise especially walking and swimming. Hydrotherapy in heated pools.
- Referral to physiotherapists and occupational therapists for expertise in exercise supervision, physical therapy and advice regarding coping in the home and work is important.

- Joint movement: each affected joint should be put daily through a full range of motion to keep it mobile and reduce stiffness.

Pharmaceutical agents

First line: simple analgesics (e.g. paracetamol) aspirin NSAIDs
Second line: disease-modifying agents e.g. hydroxychloroquine, gold compounds (IM or orally), D-penicillamine sulfasalazine, immunosuppressive agents, e.g. methotrexate, azathioprine, cyclophosphamide, leftunomide, cyclosporin
Third line: corticosteroids

Connective tissue disorders

The three main connective tissue disorders have the common feature of arthritis or arthralgia. Other common features include vasculitis and multisystem involvement.

Systemic lupus erythematosus (SLE)

Arthritis is the commonest clinical feature of SLE (over 90%). It is a symmetrical polyarthritis involving mainly small and medium joints, especially the proximal interphalangeal and carpal joints of the hand.

Investigations

- ESR—elevated in proportion to disease activity
- Antinuclear antibodies +ve in at least 95%
- Double-stranded DNA antibodies →95% specific for SLE but present in only 60%
- ENA antibodies, esp. Sm—highly specific
- Rheumatoid factor +ve in 50%
- LE test—inefficient and not used

Drug treatment

- Mild—NSAIDs/aspirin (for arthralgia)
- Moderate—low-dose antimalarials (e.g. hydroxychloroquine)—up to 6mg/kg once daily
- Moderate to severe—corticosteroids; immunosuppressive dings (e.g. azathioprine)

Systemic sclerosis

This can present as a polyarthritis affecting the fingers of the hand in 25% of patients, especially in the early stages. Systemic sclerosis mainly affects the skin, presenting with Raynaud's phenomenon in over 85%.

Investigations (no specific diagnostic tests)

- ESR maybe raised
- Antinuclear antibodies (ABs)—>90% +ve
- Rheumatoid factor +ve in 30%
- Antinucleolar and anticentromere Abs—specific

Treatment

- Analgesics and NSAIDs for pain
- Avoid vasospasm (no smoking)
- Nifedipine for Raynaud's
- D-penicillamine for skin or systemic involvement
- Proton-pump inhibitors for GORD

Polymyositis and dermatomyositis

Arthralgia and arthritis occur in about 50% of patients and may be the presenting feature before the major feature of muscle weakness and wasting of the proximal muscles of the shoulder and pelvic girdles appear. The small joints of the hand are usually affected and it may resemble rheumatoid arthritis. Polymyositis + associated rash = demiatomyositis.

Crystal arthritis

Arthritis, which can be acute, chronic or asymptomatic, is caused by a variety of crystal deposits in joints. The three main types of crystal arthritis are monosodium mate (gout) (257), calcium pyrophosphate dihidrate and calcium phosphate (usually hydroxyapatite).

The spondyloarthropathies

The spondyloarthropathies are a group of disorders with common characteristics affecting the spondyles (vertebrae) of the spine. The small joints of the hand are usually affected. Apart from back pain this group tends to present with oligoarthropathy in younger patients.

The group of disorders

1 Ankylosing spondylitis
2 Reiter's syndrome/reactive arthritis
3 Inflammatory bowel disease (enteropathic arthritis)
4 Psoriatic arthritis
5 Juvenile chronic arthritis
6 Unclassified spondyloarthritis—partial features only

Ankylosing spondylitis

This usually presents with inflammatory back pain (sacroiliac joints and spine) and stiffness in young adults and 20% present with peripheral joint involvement before the onset of back pain. It usually affects the girdle joints (hips and shoulders), knees or ankles.

Key clinical features

- Insidious onset of discomfort
- Age less than 40y
- Persistence for >3mth
- Associated morning stiffness
- Improvement with exercise or NSAIDs

Reactive arthritis (Reiter's syndrome)

This is a form of reactive arthropathy in which non-septic arthritis and often sacroiliftis develop after an acute infection with specific venereal or dysenteric organisms.

Reiter's syndrome = NSU + conjunctivitis ± iritis + arthritis
Reactive arthritis = similar syndrome without ocular or mucocutaneous lesions

Enteropathic arthritis

Inflammatory bowel disease (ulcerative colitis, Crohn's disease and Whipple's disorder) may be associated with peripheral arthritis and sacroiliftis.

Psoriatic arthritis

Like Reiter's syndrome, this can develop a condition indistinguishable from ankylosing spondylitis. It is therefore important to look beyond the skin condition of psoriasis, for about 5% will develop psoriatic arthropathy.

Management principles of spondyloarthropathies

- Identify the most active elements of the disease and treat accordingly.
- Provide patient and family education with appropriate reassurance.
- Pharmacological agents:
  - NSAIDs (e.g. indomethacin 75–200mg daily) to control pain, stiffness and synovitis
  - sulfasalazine (if NSAIDs ineffective)
  - intra-articular corticosteroids for severe monoarthritis and intralesional corticosteroids for enthesopathy
  - immunosuppressive agents for severe cases

Lyme disease

Lyme disease (known as Lyme borreliosis) is caused by a spirochete, *Borrelia burgdorferi*, and transmitted by *Ixodes* ticks, in particular the deer tick.

Diagnostic serology should be considered for patients with a history of tick bites, typical rash (a doughnut-shaped red rash about 6cm in diameter) at the bite site, heart disorders (especially arrhythmias), unusual joint arthralgia or CNS disease. CNS disease includes muscle weakness of the limbs, muscular pain or evidence of meningitis. In children Lyme disease can be mistaken for juvenile chronic arthritis (255–6).

The arthralgia The typical picture is thatmth (eveny) after the tick bite up to 60% of patients will develop joint and periarticular pain (without objective findings), specific arthritis, mainly of the large joints such as the knee, and/or chronic synovitis.

Treatment Treatment is with penicillin, tetracycline or cephalosporins (e.g. doxycycline 100mg bd for 21d). If antibiotics are given early in the acute illness it tends to terminate abruptly.

The vasculitides

The vasculitides or vasculitis syndromes are a heterogeneous group of disorders involving inflammation and necrosis of blood vessels, the clinical effects and classification depending on the size of the vessels involved.

More common causes are the small vessel vasculitis effects associated with many important diseases such as rheumatoid arthritis, SLE, infective endocarditis, Henoch-Schonlein purpura and hepatitis B. Skin lesions and arthritis are usually associated with these disorders.

The major vasculitides are polyarteritis nodosa, giant cell arteritis, polymyalgia rheumatica and Wegener's granulomatosis. Arthritis or limb girdle pain can be a component of the clinical presentation.

Asthma

Definition of control of asthma

- No cough, wheeze or breathlessness most of the time
- No nocturnal waking due to asthma
- No limitation of normal activity
- No overuse of [3z-agonist
- No severe attacks
- No side-effects of medication

Pharmacological agents to treat asthma

It is useful to teach patients the concept of the 'preventer' and the 'reliever' for their asthma treatment.

'Preventer' drugs or anti-inflammatory agents These medications are directed toward the underlying abnormalities bronchial hyper-reactivity and associated airway inflammation. They are *underused* in practice.

Six big advances in the management of asthma

1. The realisation that asthma is an inflammatory disease. Therefore, the appropriate first-line treatment in moderate to severe asthma is inhaled cromolyn or corticosteroids.
2. Regular monitoring with spirometry.
3. The use of spacers attached to inhalers/puffers for all ages.
4. Improved and more efficient inhalers, such as Turbuhalers.
5. The availability of long acting steroids and β2 agonists, including a combination of these agents.
6. The availability of leukotriene antagonists.

If poor response or if in extremis

- Adrenaline 1:10000 IV (1mL, over 30 seconds) with monitor or Salbutamol 200–400µg IV over 2min
- Chest X-ray to exclude complications
- Arterial blood gases/pulse oximetry then
- IV infusion of salbutamol and hydrocortisone

Children

Should be referred to an intensive care unit:

- Continuous nebulised 0.5% salbutamol via mask
- Oxygen flow 6–8L/min through nebuliser
- IV infusion of:
  - salbutamol 5mg/kg/min
  - hydrocortisone 4mg/kg statim then 6 hrly

Common mistakes in children

- Using assisted mechanical ventilation (it can be dangerous—main indications are physical exhaustion and cardiopulmonary arrest)
- Not giving high flow oxygen
- Giving excessive fluid
- Giving suboptimal bronchodilator therapy

Asthma in children

Key checkpoints

- Bronchodilators, inhaled or oral, are ineffective under 12mth.
- The delivery method is a problem in children and Table 11 gives an indication of what systems can be used at various levels.
- In the very young (e.g. 1–2y old) a spacer with a face mask can deliver the aerosol medication.
- It is recommended to wash spacers in soapy water or detergent and leave to dry on a towel every 7d.
- The PIT rate should be measured in all asthmatic children older than 6y. It is unreliable before 7y.
- The Turbuhaler is usually not practical under 7–8y.

Prophylaxis in children

Sodium cromoglycate (SCG) or nedocromil by inhalation is the prophylactic chug of choice in childhood chronic asthma of mild to moderate severity.

- A symptomatic response occurs in about 1–2wk (can take up to 4–6wk).
- SCG (Forte) is an alternative to low-dose inhaled corticosteroids once the asthma is stable.

If there is no clinical response to the cromodyns, use inhaled corticosteroids, but the risks versus benefits must always be considered. Aim for a maintenance of 100–400µg, which keeps the child symptom-free. One or two attacks only is not an indication to start corticosteroids.

Lemotriene antagonists (e.g. montelukast 5mg chewable tablet nocte) in those aged 6–14y is another option.

Table 11 Delivery systems for asthma in children

	Age in y			
Vehicle of administration	**<2**	**2–4**	**5–7**	**7–8 +**
Inhaler alone	*	√		
Inhaler + spacer	√	√	√	
Inhaler + spacer + face mask or aerochamber	√	√		√
Turbuhaler	*	√		
Nebuliser/ air compressor/ face mask	√	√	√	
Spincaps				√
Rotacaps				√

* Possible in some individual children.

12MM VERTICAL OFFSET
BETWEEN THUMB INDICES
13 + 13 LETTERS OF ALPHABET TOP TO BOTTOM

A head 14/15 extrabold

B head 12/12 bold italic

C head 10/10 bold

D head 10/10 semibold italic

E head 8.5/10 bold text serif Text to run on following an EN space unless the following line is a list item or a table.

Proposed page reference icon: (□255–6)